Little Salmon River Spring/Summer Chinook Salmon Population
Population Viability Assessment

The Little Salmon chinook population (Figure 1) is part of the Snake River Spring/Summer Chinook ESU which has five major population groupings (MPGs): Lower Snake River, Grande Ronde / Imnaha, South Fork Salmon River, Middle Fork Salmon River, and the Upper Salmon River group. The ESU contains both spring and summer run chinook. The Little Salmon River population is a spring/summer run and is one of four extant populations in the South Fork Salmon MPG.

The ICTRT classified the Little Salmon River population as an "intermediate" population (Table 1) based on historical habitat potential (ICTRT 2005). Due to core area considerations, however, this population is treated as "basic" for abundance and productivity criteria. A chinook population classified as basic has a mean minimum abundance threshold of 500 naturally produced spawners with sufficient intrinsic productivity to achieve a 5% or less risk of extinction over a 100-year timeframe.

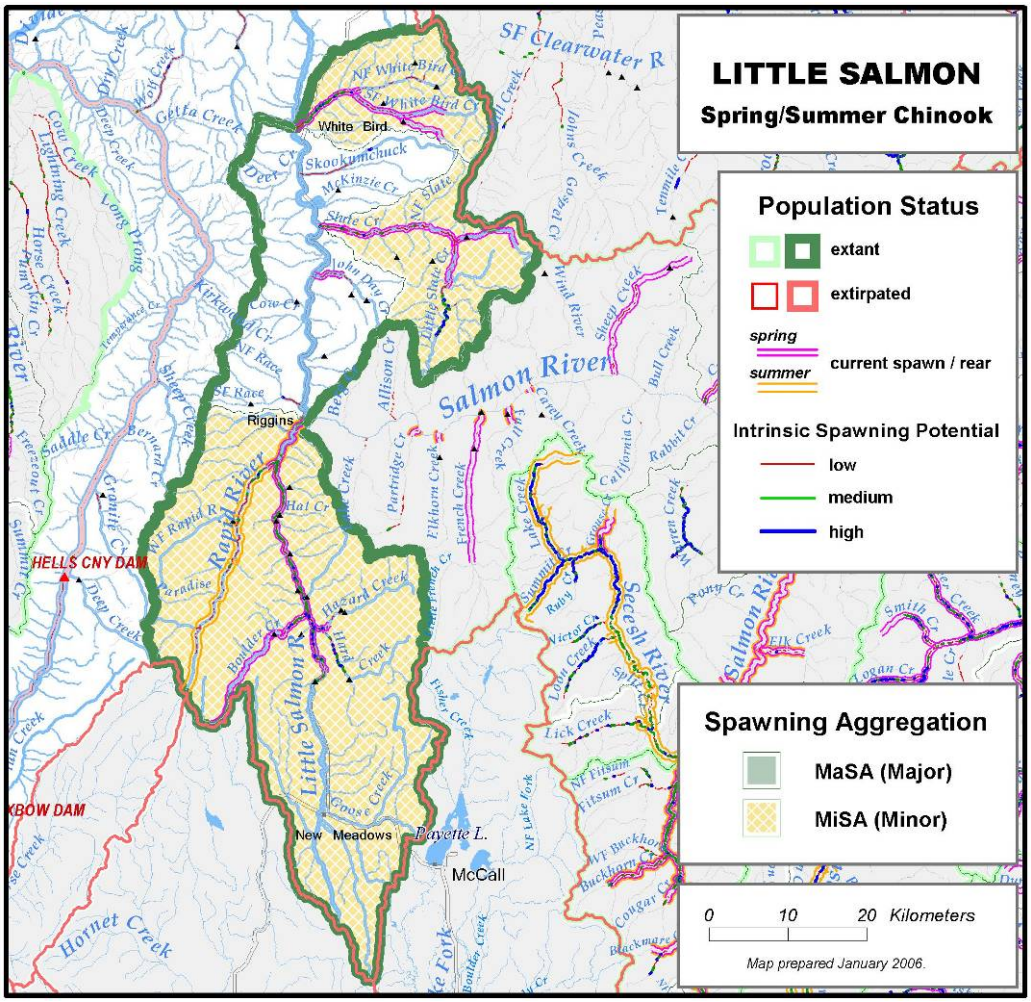

Figure 1. Little Salmon River chinook major and minor spawning areas.

Table 1. Little Salmon River chinook basin statistics

Drainage Area (km2)	2,726
Stream lengths km* (total)	1,078
Stream lengths km* (below natural barriers)	515
Branched stream area weighted by intrinsic potential (km2)	0.696
Branched stream area km2 (weighted and temp. limited)	0.589
Total stream area weighted by intrinsic potential (km2)	0.397
Total stream area weighted by intrinsic potential (km2) temp limited	0.359
Size / Complexity category	Intermediate*** / "D" (core drainage plus adjacent but separate small tribs)
Number of MaSAs	0
Number of MiSAs	3

*All stream segments greater than or equal to 3.8m bankfull width were included
**Temperature limited areas were assessed by subtracting area where the mean weekly modeled water temperature was greater than 22^{o}C.
***This population is treated as a "basic" sized population with regard to abundance and productivity criteria due to core area considerations.

Current Abundance and Productivity

Current natural abundance (number of adult spawning in natural production areas) is unknown for this population.

Recent year natural spawners include returns originating from naturally spawning parents, strays?

Spatial Structure and Diversity

The ICTRT has identified no major spawning areas (MaSAs) and three minor spawning areas (MiSAs) within the Little Salmon River Spring/Summer Chinook population. Most spawning occurs in ???

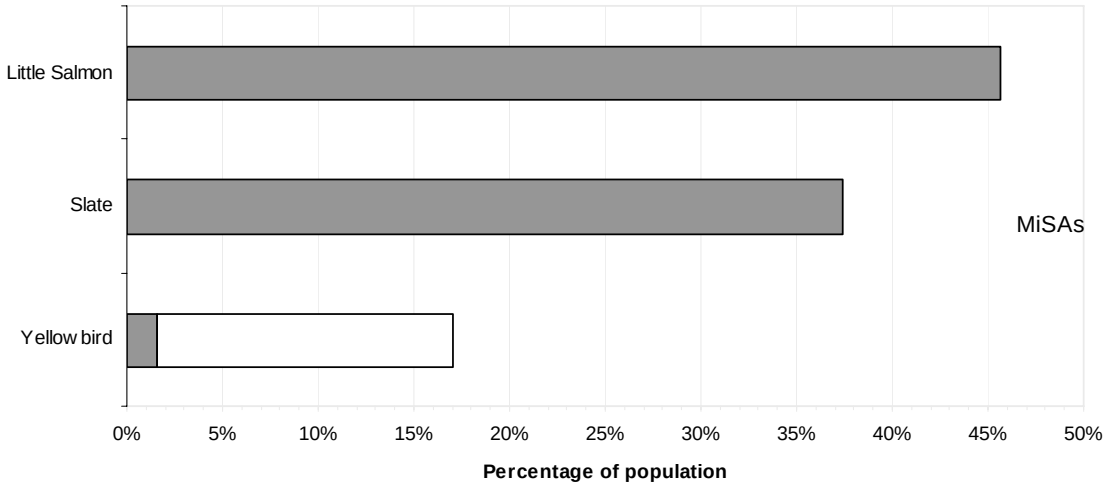

Figure 2. Proportions of minor spawning areas that make up the Little Salmon River chinook population. Modeled temperature limitations within the Yellowbird MiSA are shown in white.

Factors and Metrics

A.1.a. Number and spatial arrangement of spawning areas.

A.l.b. Spatial extent or range of population.

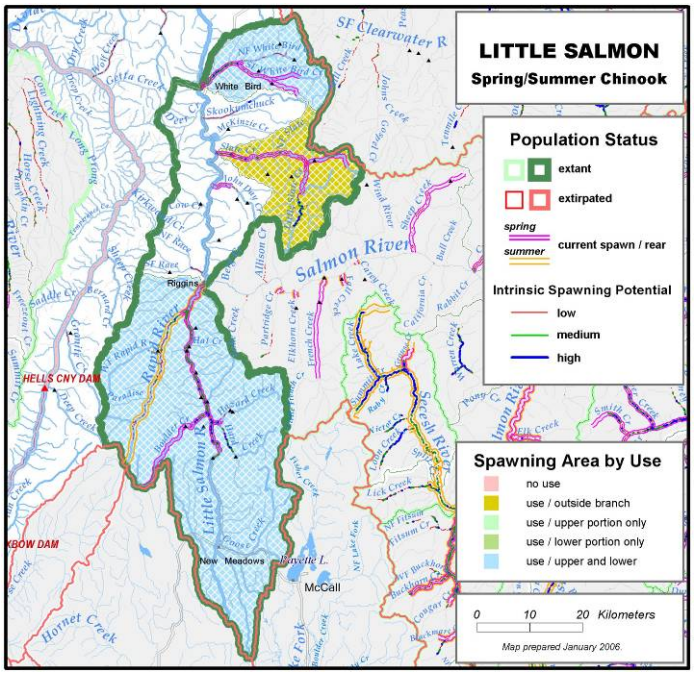

Figure 3. Little Salmon River chinook salmon distribution.

A.1.c. Increase or decrease in gaps or continuities between spawning areas.

B.1.a. Major life history strategies.

B.1.b. Phenotypic variation.

B.1.c. Genetic variation.

B.2.a. Spawner composition.

(1) *Out-of-ESU strays*.

(2) *Out-of-MPG strays from within the ESU*.

(3) *Out of population within MPG strays*.

(4) *Within-population hatchery spawners.*

The overall risk rating for metric B.2.a "spawner composition" is ???? *Risk* because of the ???.

B.3.a. Distribution of population across habitat types.

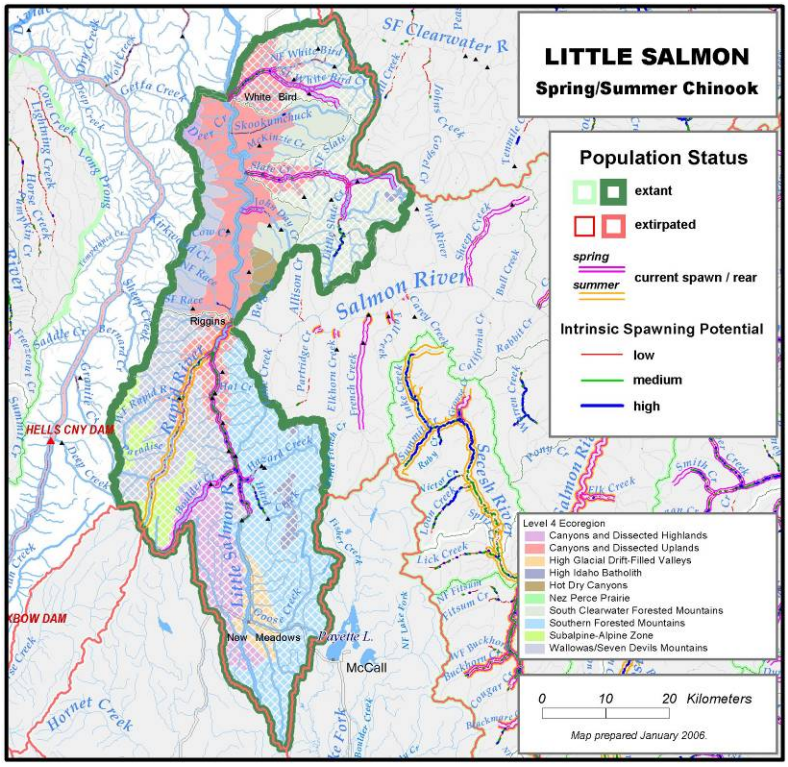

Figure 4. Little Salmon River chinook population distribution across various ecoregions.

Table 2. Little Salmon River Spring/Summer Chinook—proportion of spawning areas across various ecoregions.

Ecoregion	% of historical branch spawning area in this ecoregion (non-temperature limited)	% of historical branch spawning area in this ecoregion (temperature limited)	% of currently occupied spawning area in this ecoregion (non-temperature limited)
Canyons and Dissected Uplands	17.0	1.9	54.3
South Clearwater Forested Mountains	37.4	44.2	8.1
Southern Forested Mountains	29.9	35.4	22.7
Subalpine-Alpine Zone	0.0	0.0	0.1
Wallowas/Seven Devils Mountains	15.7	18.5	14.8

B.4.a. Selective change in natural processes or selective impacts.

Hydropower system:

Harvest:

Hatcheries:

Habitat:

Spatial Structure and Diversity Summary

Overall spatial structure and diversity has been rated *???* *Risk* for the Little Salmon River population (Table 4).

Table 3. Spatial structure and diversity scoring table

Metric	Risk Assessment Scores				
	Metric	Factor	Mechanism	Goal	Population
A.1.a	M (0)	M (0)	Low Risk (Mean=1.33)	Low Risk	**Low Risk**
A.1.b	L (1)	L (1)			
A.1.c	L (1)	L (1)			
B.1.a	VL (2)	VL (2)	Low Risk	Low Risk	
B.1.b	L (1)	L (1)			
B.1.c	L (1)	L (1)			
B.2.a(1)	VL (2)	Low Risk	Low Risk		
B.2.a(2)	VL (2)				
B.2.a(3)	L (1)				
B.2.a(4)	VL (2)				
B.3.a	L (1)	L (1)	Low Risk		
B.4.a	L (1)	L (1)	Low Risk		

Overall Viability Rating

The Little Salmon River spring/summer Chinook salmon population does not currently meet

		Spatial Structure/Diversity Risk			
		Very Low	**Low**	**Moderate**	**High**
Abundance/ Productivity Risk	**Very Low** (<1%)	HV	HV	V	M
	Low (1-5%)	V	V	V	M
	Moderate (6 – 25%)	M	M	M	
	High (>25%)				

Figure 5. Viable Salmonid Population parameter risk ratings for the Little Salmon Spring/Summer Chinook salmon population. This population does not currently meet viability criteria. *Viability Key: HV – Highly Viable; V – Viable; M – Maintained; Shaded cells-- not meeting viability criteria (darkest cells are at greatest risk)*